IN THE CLAIMS

The following is a complete listing of the claims, and replaces all earlier versions and listings.

1. (Previously Presented) A method of decoding a one-point algebraic geometric code of dimension k and length n, wherein, in order to identify a position of errors in a received word, a syndromes matrix S, of size $(n - k) \times (n - k)$, is defined, of which elements S_{ij} of each line I are calculated, for j between 1 and $w(I)$, wherein boundary w is a decreasing function, using syndrome s of the received word,

said method comprising matrix construction steps numbered by u, during which matrices S^u are constructed starting with $S^1 = S$, and wherein each matrix S^u for $u > 1$ is obtained from matrix S^{u-1} by performing:

where appropriate, permutations on columns of the matrix S^{u-1}, then

linear manipulations involving a line of index u of the matrix so obtained,

and wherein the construction of matrices terminates when:

either $S^u{}_{uj} = 0$ for all j between 1 and w(u),

or there is an integer u* ≤ (u-1) such that $S^{u^*}{}_{u^*j} = 0$ for all j between 1 and w(u).

2. (Previously Presented) A method of decoding a one-point algebraic geometric code of dimension k and length n, wherein, in order to identify a position of errors in a received word, a syndromes matrix S, of size $(n - k) \times (n - k)$, is defined, of

which elements S_{ij} of each line i are calculated, for j between 1 and w(i), wherein boundary w is a decreasing function, using syndrome s of the received word,

said method comprising matrix construction steps numbered by u, during which matrices S^u are constructed starting with $S^1 = S$, and wherein each matrix S^u for $u > 1$ is obtained from matrix S^{u-1} by performing:

where appropriate, permutations on columns of the matrix S^{u-1}, then

linear manipulations of a line of index u of the matrix so obtained,

and wherein the last step is:

either the step of number $u = \lambda$, if an integer λ is determined such that $S^{\lambda}{}_{\lambda j} = 0$ for all j between 1 and w(λ),

or the step of number $u = (\lambda - 1)$, if an integer λ and an integer u^* are determined, with $u^* < \lambda$, such that $S^{u^*}{}_{u^*j} = 0$ for all j between 1 and w(λ).

3. (Previously Presented) A decoding method according Claims 1 or 2, in which a number of lines of each matrix S^u is cut off at $U_{\max}$, wherein $U_{\max}$ is a smallest integer i for which $w(i)$ is less than i.

4. (Previously Presented) A decoding method according to Claims 1 or 2, in which a number of columns of each matrix S^u is cut off at $w(u)$.

5. (Previously Presented) A decoding method according to Claims 1 or 2, in which a number of columns of each matrix S^u is cut off at $w(\mu_D)$ for u between 1 and Duursma's minimum μ_D, and at w(u) for u greater than μ_D.

6. (Previously Presented) An error correction device for decoding a one-point algebraic geometric code of dimension k and length n, adapted to identify a position of errors in a received word, and comprising means for defining a syndromes matrix S, of size $(n - k) \times (n - k)$, of which elements S_{ij} of each line i are calculated, for j between 1 and $w(i)$, wherein boundary w is a decreasing function, using syndrome s of the received word,

said error correction device further comprising means for constructing matrices S^u numbered by u, with $S^1 = S$, each matrix S^u for u > 1 being obtained from matrix S^{u-1} by performing:

where appropriate, permutations on columns of the matrix S^{u-1}, then

linear manipulations involving a line of index u of the matrix so obtained,

and comprising means for stopping the construction of the matrices when:

either $S^u{}_{uj} = 0$ for all j between 1 and $w(u)$,

or there is an integer $u^* \leq (u-1)$ such that $S^{u^*}{}_{u^*j} = 0$ for all j between 1 and $w(u)$.

7. (Previously Presented) An error correction device according to Claim 6, further comprising means for cutting off a number of lines of each matrix S^u at U_{max}, wherein U_{max} is a smallest integer i for which $w(i)$ is less than i.

8. (Previously Presented) An error correction device according to Claims 6 or 7, further comprising means for cutting off a number of columns of each matrix S^u at $w(u)$.

9. (Previously Presented) An error correction device according to Claims 6 or 7, further comprising means for cutting off a number of columns of each matrix S^u at $w(\mu_D)$ for u between 1 and Duursma's minimum μ_D, and at $w(u)$ for u greater than μ_D.

10. (Previously Presented) A decoder, comprising:

at least one error correction device according to Claims 6 or 7, and

at least one redundancy suppression device.

11. (Previously Presented) Apparatus for receiving encoded digital signals, comprising a decoder according to Claim 10, and means for demodulating the encoded digital signals.

12. (Previously Presented) A computer system, comprising a decoder according to Claim 10, and further comprising:

at least one hard disk, and

at least one means for reading said hard disk.

13. (Previously Presented) Non-removable data storage means, comprising computer program code instructions for the execution of the steps of a method according to Claims 1 or 2.

14. (Previously Presented) Partially or wholly removable data storage means, comprising computer program code instructions for the execution of the steps of a method according to Claims 1 or 2.

15. (Previously Presented) Computer program, containing instructions such that, when said program controls a programmable data processing device, said instructions lead to said data processing device implementing a method according to Claims 1 or 2.

16. (New) The method of decoding according to Claim 1, wherein said method is performed by a decoding device.